In 1872 he was elected a member of the Academy of Sciences; in 1880, Director of the Conservatoire des Arts et Métiers; and in 1887, Vice-President of the Academy of Sciences. Notwithstanding the manifold calls on his time, he worked hard to secure the success of the Exhibition of 1867, and of all the succeeding Paris Exhibitions.

Believing it to be important that men of science should take part in politics, he entered the Chamber as Deputy for La Manche, and became Minister of Agriculture in the Brisson Ministry, in which he was of eminent service.

During the war of 1870 he gave proof of ardent patriotism. Night and day, during the siege of Paris, he made incessant observations in order to facilitate the despatch of letters by balloon. For six months he did not miss the departure of one of the balloons; he was always present, encouraging the aëronauts, and giving them valuable directions. When M. Tissandier was about to leave Paris in a balloon, laden with messages for the Government at Tours, M. Hervé Mangon said to him, "Vous avez bon vent est-nord-est; vous allez filer dans la direction de Dreux," and the balloon descended at the gates of that very town.

M. Hervé Mangon was the son-in-law of J. B. Dumas. He had a wide circle of friends, and many young men of science owe him a deep debt of gratitude for the encouragement they received from him in their work. For a long time he suffered from a painful malady, and on the 15th of May he died at Paris, in his sixty-seventh year.

NOTES.

THE annual Ladies' *Conversazione* of the Royal Society will be held on Wednesday, June 6.

MR. R. G. HALIBURTON writes from Oran, Algeria, that a few hours after he had read the account in the *Times* of the recent *soirée* of the Royal Society, at which two skeletons of Akkas, sent by Emin Pasha from Equatorial Africa, were exhibited, the discovery, made by himself in February last, of the existence of another dwarf race, in North Africa, also only 4 feet high, and called by the same name, Akkahs, was confirmed by the receipt of a letter on the subject from our late Minister at Morocco, Sir John Drummond Hay.

THE creation of the new Chair of Philosophie Biologique is to be proposed to the Sorbonne in the course of the next few days. There will be much opposition to the scheme, but not enough to prevent it from being carried out.

THE ceremony in honour of Prof. Donders, at Utrecht, on Monday, passed off most successfully. Many friends and admirers, not only from all parts of Holland, but from the Dutch colonies and other countries, assembled to show their respect for the illustrious investigator, and the Dutch Government was represented on the occasion by the Home Minister. A medal commemorative of the ceremony was struck, and the King of Holland conferred on Prof. Donders the distinction of Commander of the Golden Lion. King Humbert sent him the Order of the Crown of Italy, and Sir Joseph Lister congratulated him on behalf of the Royal Society of England. In responding to the address recognizing his services to science and humanity, Prof. Donders declared that although the law rendered it necessary for him, on the attainment of his seventieth birthday, to resign his professorship, he did not consider that he had finished his task The sum subscribed as an expression of gratitude for Prof. Donders' work is to be appropriated, in accordance with his own decision, for the benefit of young physiologists and ophthalmologists at the University.

DURING the recent cruise of the Liverpool Marine Biology Committee in the s.s. *Hyæna*, the electric light was applied to deep and surface tow-netting after dark with important results. We hope shortly to publish fuller details.

A MARINE zoological station, on the plan of the one at Naples, is shortly to be established at Ostend. The proposal is supported by four Belgian Universities.

A LETTER has been received by Sir J. D. Hooker from Mr. Joseph Thomson, dated Mogador, May 6, stating that he is on the eve of starting by a route through the province of Shedma to Saffi, where, after a short stay with M. Hunot, H.B.M.'s Consul there, he will go direct to Demenat, an entirely unexplored part of the Atlas, north-east of the city of Morocco. Mr. Thomson describes the past season as having been exceptionally late and cold, and with an extraordinary rain and snowfall; the season's rainfall at Mogador having been more than 32 inches, against an average of less than 18 inches.

IT is stated that Mr. Knipping, of the Meteorological Department of Japan, is coming to Europe on a mission to report on European meteorological observatories.

IN the *American Meteorological Journal* for April, Mr. A. L. Rotch continues his article on the history of the meteorological organizations, dealing with the German Institute, and the various newspaper services. Prof. F. Waldo contributes a very interesting paper on the instruments for making observations of the amount and direction of the wind. Special attention is given to Dr. Robinson's anemometer, as the instrument almost universally adopted, and so called from his investigation of its principle, published in 1850. Its invention is attributed to Edgeworth, who first used it as a scientific instrument, but a similar apparatus, made of wood, with oval cups, is described in the *Mongolische Völker*, 1770. Dr. Robinson found that the velocity of the cups must be multiplied by the factor 3 in order to get the true wind velocity, and this value was generally adopted. Mr. Stow and Prof. Stokes in this country, and Dr. Dohrandt in Russia, first questioned the accuracy of this value, and recent careful experiments by Mr. Dines, just communicated to the Royal Meteorological Society, show that the factor for anemometers of this class must be reduced to about 2·15. And further, it has been found that the formula for conversion of velocity to pressure ($P = \cdot005V^2$) adopted by Smeaton (Phil. Trans. 1763), and repeated subsequently in text-books, requires amendment, so that the pressures deduced from velocity anemometers have been greatly exaggerated. In fact great doubt has been expressed by competent authority as to the value of the records of this class of instruments. Prof. Waldo's discussion of the subject is therefore very opportune.

AT Cragside, Rothbury, Northumberland, the seat of Lord Armstrong, a very fine female of Pallas's sandgrouse (*Syrrhaptes paradoxus*) killed itself against the telegraph-wires near Cragside on Wednesday, May 23. The bird was picked up by the gamekeeper, and was sent by Lord Armstrong to Mr. John Hancock at the Natural History Museum, Newcastle-on-Tyne, where it will be carefully preserved. This bird was in fine plumage, and was proved by dissection to be a female, the ovary containing seven ova about the size of No. 1 shot, and numerous others of very much smaller size. It is a curious coincidence that the first specimens of Pallas's sand grouse, recorded in 1863, were shot at Thropton, a few miles west of Rothbury, on May 21, and were sent to Mr. Hancock. The crop of another specimen (male) of this bird, which we are told was obtained at Winlaton, five or six miles west of Newcastle-on-Tyne, was sent to the Museum on the 23rd inst. The crop was full of the seed of a wild plant, probably charlock or wild mustard (*Sinapis arvensis*, L.).

DR. TRIMEN'S report on the five Royal Botanic Gardens of Ceylon, which has just been issued, contains much interesting matter relating to the economic aid given by the institution to planting in Ceylon and elsewhere. Referring to the gradual decline in the cultivation of coffee, Dr. Trimen mentions, as one of the causes, that it has suffered severely during the last few years from the attacks of a scale-insect or "bug" which has in some places actually killed out the bushes. Practical planters think the insect different from either of the "bugs" familiar hitherto as foes to coffee—*Lecanium coffeæ* and *L. nigrum*, the brown coffee and black bugs. The distinctions between the three have been pointed out by Mr. E. Green in a paper with illustrations printed by the Government of Ceylon. He names the new pest *L. viride*, it being generally known as the green bug. Dr. Trimen mentions that his principal employment during the past year has been the compilation, with the aid of the library and herbarium, of a catalogue of the contents of the gardens, for use by the staff, the public, and correspondents in other countries. The list as now completed is brought down to the end of 1886, and contains about 3000 species, mostly trees and shrubs. He also reports the commencement of the long projected museum of economic botany.

A VOLUME on the life and works of Lavoisier, by Prof. E. Grimaux, of the Polytechnic School of Paris, has just been published. It is illustrated by many interesting engravings, two of which represent Lavoisier in his laboratory. A number of hitherto unknown documents relating to Lavoisier have been discovered by Prof. Grimaux.

MESSRS. MACMILLAN AND BOWES, Cambridge, will have ready in a week a "Bibliography of the Works of Sir Isaac Newton, together with a List of Books illustrating his Life and Works," by G. J. Gray.

MESSRS. MACMILLAN AND CO. will shortly publish a work on "The Theory and Practice of Absolute Measurements in Electricity and Magnetism," by A. Gray, M.A., Professor of Physics in the University College of North Wales. Though nominally a second edition of the small book by the same author published in 1884, it has been entirely re-written and extended in plan, so as to form a fairly complete treatise on the absolute measurement of electric and magnetic quantities. This has necessitated the division of the work into two volumes, of which the first, extending to over 450 pages, is about to be issued. The following is a synopsis of the contents :—Vol. I. contains a sketch of the theory of electro-statics and flow of electricity, chapters on units, general physical measurements, electrometers, comparison of resistances, comparison of capacities, and measurement of specific inductive capacities, and concludes with an appendix of tables of units, resistances, and useful constants. The chapter on the comparison of resistances contains full details of the various methods of comparing high and low resistances, calibration of wires, &c. ; the chapter on capacities discusses methods generally, and contains an account, as full as possible, of the principal determinations of specific inductive capacity made up to the present time. Vol. II. will contain an account of magnetic theory, units and measurements ; electro-magnetic theory and absolute measurement of currents, potentials and electric energy ; the definitions and realization of the ohm and other practical units ; the relations of electro-magnetic and electrostatic units and the determination of *v* ; practical applications of electricity, and especially related points of theory and measurements. (This volume is in hand, and will be issued as soon as possible after Vol. I.) An attempt has been made to arrange the work so as to avoid any too sharp distinction between what is theoretical and what is practical, and at the same time preserve a logical order in the former and prevent the constant introduction of digressions on theory into accounts of instruments and processes of manipulation.

A WORK of some interest and importance, "Excursions zoologiques dans les Iles de Fayal et de San Miguel (Açores)," has just been produced by M. Jules de Guerne, at the expense of Prince Albert de Monaco. Of the new species mentioned, some, perhaps all, have been elsewhere recorded in contemporary periodicals. M. de Guerne concludes from his researches that the land fauna of the Azores has a definitely European character ; that the fresh-water fauna has the same character, many of the species composing it being probably cosmopolitan, most of them provided with powerful means of dissemination, which have enabled them to reach the Azores ; that most of the species have been brought by the wind and by birds, the wind playing only a secondary part ; that the lakes in the craters are of modern origin, due to the accumulation of rain-water, and have not taken long to people ; that the character of the aquatic types and the absence of any great struggle for existence suffice to explain this rapid peopling of the waters ; that the land species, like those of the water, have been fortuitously introduced from the nearest islands and continents, though at a remoter epoch and more distant intervals, this greater antiquity accounting for the greater differentiation of the land fauna, and in especial of the Mollusca ; that the alpine character of the land fauna has not been demonstrated, and that, on the theory of the gradual submergence of the islands, the animals of the littoral region in retiring to the higher grounds would have there produced a varied and numerous assemblage of species, which, as a fact, is not found. Incidentally, M. de Guerne points out a mistake which has crept into works of importance—a sudden depth of 58 fathoms at a single spot being attributed to the little Lagoa Grande in the Island of San Miguel, instead of the true depth, which is about 17 fathoms.

THE Bancroft Company, San Francisco, announces that there will shortly be added to the series of guide-books to the Pacific Coast a hand-book of the Lick Observatory, which has been prepared by Prof. Edward S. Holden, Director of the Observatory. This book is intended to give all the information which will be of value to each one of the many visitors to the Lick Observatory, which possesses the largest and most powerful telescope in the world, and is situated in one of the wildest and most romantic portions of California. Besides the useful and necessary information of a mere guide-book, the work is to contain interesting and popular accounts of the various astronomical instruments, and of the way in which they are made and used. It will be illustrated by twenty or more woodcuts from photographs and drawings.

MR. HENRY BEDFORD, of All Hallows College, Dublin, writes to us :—" I see among the notes in your last number (p. 87) that Herr Sander, in his paper on some recently deciphered runic inscriptions in Sweden, says that 'in four of them appeared the word *Pim* or *Piment* (*i.e.* a strong drink composed of wine, honey, and spice), which, as well as *Klaret*, was mentioned in the *Saga* of Rollo the Ganger and the Normans,' and that 'all these inscriptions were referred to the close of the pagan age.' Now if the word *Klaret* refers like *Piment* to some kind of drink, does not this point to the direction in which we are to look for some more satisfactory explanation of our modern word *Claret* than that which our dictionaries give—as a derivation from the French *clairet*—although the word is not used in that language to describe the French wine to which we apply it. Perhaps you or some of your readers will throw some light upon the origin of this obscure word."

THE 800th anniversary of the University of Bologna will be celebrated on June 12 next. An oration will be delivered by the poet Giosuè Carducci. There will also be a musical performance, an ode having been written for the occasion by Panzacchi, and set to music by Baron Franchetti.

LAST week we printed a letter from M. Julius, of Delft, Holland, asking a question with regard to tables of reciprocals. Mr. T. S. Barrett and Mr. A. Freeman write to us recommending Barlow's tables of squares, cubes, square roots, cube roots, and reciprocals of all integers up to 10,000. The reciprocals are given to seven places of significant figures, besides the leading zeros. The work was edited by the late A. De Morgan, and published for the Useful Knowledge Society by Taylor and Walton, London, 1840.

PROF. BALL, General Director of the Science and Art Museum, Dublin, mentions in his report for 1887, that early in the year he brought before the Council of the Royal Irish Academy the desirability of its handing over to the Museum an old collection of moulds of Irish crosses and miscellaneous sculptures, together with casts, most of which had been prepared for the Exhibition of 1853. To this proposition the Academy cordially assented, and, after much piecing together of broken fragments, it was found that the material provided a very valuable and representative set of casts. It is proposed that casts of many objects of ancient Irish art not included in this collection shall also be obtained. The collection, when completed and properly arranged in the new Museum, ought to be of great service not only to archæologists but to workmen, who would be well rewarded for a careful and elaborate study of the ideas of the mediæval craftsmen of Ireland.

HERR H. FORSELL has been chosen President of the Swedish Royal Academy of Science for the ensuing year, in place of Herr C. G. Malmström.

THE Biological Society of University College will hold its annual *soirée* at the College on Thursday, June 7, beginning at 8 p.m. Prof. W. H. Flower, F.R.S., will deliver a lecture at 9 p.m. on "The Pygmy Races of Men." Tickets may be had on application to the secretaries of the Society.

WE have received the *Annuaire* for the year 1888 of the Paris Society for the Encouragement of National Industry. Among the contents are a list of the members, and an extract from the programme relating to the prizes to be given by the Society from 1888 to 1893.

THE Danish Government has granted a sum of £500 for the purpose of having the oyster-banks in Denmark examined by an expert. His object will be to ascertain the results of their continued preservation, with a view to the resumption of fishing.

SOME months ago a large consignment of salmon ova was despatched from Denmark to Buenos Ayres, *viâ* Hamburg, for the stocking of certain lakes and rivers in the Argentine Republic. The experiment has proved very successful, the ova ariving in excellent condition, and further consignments are to be made.

THE following incident in the trial of the great patent case, Edison and Swan Electric Light Company *v.* Holland and others, now proceeding in the Chancery Division of the High Court of Justice, before Mr. Justice Kay, is taken from the shorthand report in the *Electrician* of May 18. On May 16, Prof. James Dewar, F.R.S., Professor of Chemistry in the University of Cambridge was under examination. A small crucible was produced and handed to the witness, who said: In that crucible I have, with Mr. Gimingham, carbonized filaments in the precincts of the court, using no packing and no luting of any description. The filament was a thread so far as he could remember.

Sir Horace Davey urged that this did not arise out of the cross-examination.

Mr. Justice Kay said it should have been produced in the examination-in-chief. If it were pursued, Sir Horace Davey would be entitled to ask any questions upon it.

Sir Horace Davey, cross-examining:—About what heat was this produced at?—It was a mere experiment. It was a spirit-lamp that was used.

Do you suggest that this coil, or whatever you like to call it, has been heated to a sufficient heat for use as a conductor in an incandescent lamp? —Not at the present time.

Then it is not completely carbonized?—It is carbonized; but it does not conduct well enough. It wants to be heated for a longer time at a higher temperature.

Has it been heated to a degree at which the oxygen would combine with or attack the carbon?—That I cannot say. I think it is probably at a low red heat.

Mr. Justice Kay: I am very much disgusted. I am here trying all I can to understand the case, and this is clearly an attempt to mislead. I am greatly disgusted.

Prof. Dewar: I have no desire to mislead your lordship. I have stated that this was a mere experiment. I did not produce it. It was put to me.

Mr. Justice Kay: You may stand down.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Mr. George Somerford; a Barbary Ape (*Macacus inuus* ♀) from North Africa, presented by Miss Waterman; a Brazilian Tree Porcupine (*Sphingurus prehensilis*) from Pernambuco, presented by Mr. Clement J. Bateman; a Barbary Wild Sheep (*Ovis tragelaphus*), from North Africa, presented by Mr. E. H. Forwood; a Greater Black-backed Gull (*Larus marinus*), British, presented by Prof. E. Ray Lankester, F.R.S., F.Z.S.; a Herring Gull (*Larus argentatus*), British, presented by Mr. E. Wright: a Cape Dove (*Œna capensis*), a Tambourine Pigeon (*Tympanistria bicolor*) from South Africa, presented by Mr. R. H. Milford; a White-handed Gibbon (*Hylobates lar*) from the Malay peninsula, a Chimpanzee (*Anthropopithecus troglodytes* ♀), a Marabou Stork (*Leptoptilus crumeniferus*) from West Africa, two Caracals (*Felis caracal juv*) from Africa, three Red-crowned Pigeons (*Erythrœnas pulcherrimus*), a Praslin Parrot (*Coracopsis barklyi*), two —— Kestrels (*Tinnunculus gracilis*) from the Seychelles, a Laughing Kingfisher (*Dacelo gigantea*), a Black-backed Piping Crow (*Gymnorhina tibicen*), a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, two Glass Snakes (*Pseudopus pallasi*) from Dalmatia, deposited; six Common Pintails (*Dafila acuta*), eight Common Teal (*Querquedula crecca*), eight Garganey Teal (*Querquedula circia*), ten Wigeon (*Mareca penelope*), a Shoveller (*Spatula clypeata*), British, purchased; a Red Kangaroo (*Macropus rufus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

COMET 1888 *a* (SAWERTHAL).—At the beginning of last week, apparently on May 20 or 21, the comet suddenly became very much brighter, gaining fully three magnitudes. It has since faded again. Only a few observations have as yet come to hand, but it is to be hoped that everyone who has observed it during the last fortnight, and made any estimate of its brightness, will publish his observations without delay.

THE SHORT PERIOD COMETS AND ASTEROIDS.—Prof. Kirkwood, who has already given reasons for thinking that two short period comets originally belonged to the group of asteroids, has extended his argument in the *Sidereal Messenger* for May to include the class of short period comets as a whole. He points out that, of the twenty comets concerned, seven have disappeared, either by dissolution into fragments, like Biela's comet, or by the transformation of the orbit by the influence of Jupiter, as in the case of Lexell's comet. The instances of the comets of Lexell and Wolf (1884) are representative, Prof. Kirkwood considers, of the mode in which asteroidal may have been changed into cometary orbits. Had the latter, indeed, been discovered before its perturbation, it would probably have been considered simply an asteroid of unusually long period, for its eccentricity and inclination were